

This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Industrial permit. The discharge results from the operation of a 75 MGD water treatment plant. This permit action consists of updating the WQS and updating boilerplate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260-00 et seq.

1. Facility Name and Mailing Address: Lorton/Griffith WTP
8570 Executive Park Ave
Fairfax, VA 22031-2218
SIC Code : 4941 WTP

Facility Location: 9600 Ox Road
Lorton, VA 22079
County: Fairfax

Facility Contact Name: Mishelle Noble-Blair
Telephone Number: (703)641-6612
2. Permit No.: VA0002585
Expiration Date of previous permit: August 2, 2010

Other VPDES Permits associated with this facility: None
Hazardous Waste VAD981102379
Hazardous Waste VAR000512939
Hazardous Waste VAR000517391

Other Permits associated with this facility:

E2/E3/E4 Status: Not Applicable
3. Owner Name: Fairfax Water
Owner Contact/Title: Charles Murray
General Manager
Telephone Number: (703)289-6000
4. Application Complete Date: March 29, 2010
Permit Drafted By: Alison Thompson
Date Drafted: May 12, 2010
Draft Permit Reviewed By: Joan Crowther
Date Reviewed: May 25, 2010
Public Comment Period : Start Date: July 7, 2010
End Date: August 6, 2010
5. Receiving Waters Information: See Attachment 1 for the Flow Frequency Determination
Receiving Stream Name : Occoquan River for 001, and UTs for Outfalls 002, 003, 004, 005 and 006
Drainage Area at High Dam: 570 sq.mi.
River Mile: OCC0.6.72
Stream Basin: Potomac
Subbasin: Potomac
Section: 6
Stream Class: II
Special Standards: b, y
Waterbody ID: VAN-A25E
7Q10 Low Flow: Tidal at Outfall 001
7Q10 High Flow: Tidal at Outfall 001
1Q10 Low Flow: Tidal at Outfall 001
1Q10 High Flow: Tidal at Outfall 001
Harmonic Mean Flow: Tidal at Outfall 001
30Q5 Flow: Tidal at Outfall 001
303(d) Listed: Yes
30Q10 Flow: Tidal at Outfall 001
TMDL Approved: Yes (PCB)
No (Bacteria)
Date TMDL Approved: 10/31/07 (PCB)
Due 2016 (Bacteria)
6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

<input checked="" type="checkbox"/> State Water Control Law	<input type="checkbox"/> EPA Guidelines
<input checked="" type="checkbox"/> Clean Water Act	<input checked="" type="checkbox"/> Water Quality Standards
<input checked="" type="checkbox"/> VPDES Permit Regulation	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> EPA NPDES Regulation	
7. Licensed Operator Requirements: Not Applicable

8. Reliability Class: Not Applicable

9. Permit Characterization:

<input type="checkbox"/> Private	<input type="checkbox"/> Effluent Limited	<input type="checkbox"/> Possible Interstate Effect
<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input checked="" type="checkbox"/> Toxics Monitoring Program Required	<input type="checkbox"/> Interim Limits in Permit
<input checked="" type="checkbox"/> WTP	<input type="checkbox"/> Pretreatment Program Required	<input type="checkbox"/> Interim Limits in Other Document
<input checked="" type="checkbox"/> TMDL		

10. Wastewater Sources and Treatment Description:

This Water Treatment Plant produces potable water for Fairfax County and is operated by Fairfax Water. Water from the Occoquan Reservoir flows to the Raw Water Pump Station and up the hill to the WTP.

Operation of the Old and New Lorton Facilities

The Old and New Lorton facilities as well as the Occoquan WTP that discharged under VPDES permit number VA0083755 were taken offline in 2006 when construction of the Griffith WTP was completed.

The new Griffith Facility

The new facility has separate basins for flocculation, sedimentation and filtration. The clarified water is then filtered using granular activated carbon capped multimedia filters. Filters are backwashed as necessary. The filtered water flows into the ozonation chamber, followed by chlorination with sodium hypochlorite, and is stored in one of the clearwells. The operators have the ability to add potassium permanganate, lime, fluoride, various polymers, and orthophosphate prior to the clearwells. Ammonia is added prior to distribution to keep a combined chlorine residual in the distribution system. In the spring, ammonia addition is halted to allow for the annual spring flushing of the system. The final production capacity of the facility is approximately 75.0-MGD.

Outfall 001

Attachment 2 details all contributions to the quarry pit from the production of potable water. Included with the discharges are intermittent contributions of sedimentation basin solids from the Corbalis WTP. The quarry pit is over 300 feet deep and has an estimated capacity of 0.9 billion gallons. The discharge pipe from the quarry was increased from 16 inches in diameter to 24 inches as part of the Griffith WTP project. The pipe's inlet is submerged several feet below the water surface. The pipe runs from the south edge of the quarry to the north bank of the Occoquan River, where the clarified supernatant discharges from the outlet of the pipe and cascades down a steep slope over rip rap to the river. Since the inlet is submerged, the discharge is continuous, even though the inflows to the quarry are intermittent in nature.

Stormwater is discharged from Outfalls 002, 003, 004, 005, and 006. Best management practices are utilized for these outfalls.

See Attachment 3 for the Industrial Rating Worksheet.

The discharge locations are identified on the attached topographic map – Occoquan Quadrangle (DEQ 194A) (Attachment 4).

TABLE 1 - Outfall Description

OUTFALL NUMBER	DISCHARGE SOURCES	TREATMENT	FLOW (Avg/Max)	FREQUENCY	Outfall Latitude Longitude
001	See Attachment 2	sedimentation	See Attachment 2		38°41'11" 77°15'46"
002	Industrial Stormwater*	BMP	Varies	intermittent	38°41'36" 77°15'42"
003	Industrial Stormwater*	BMP	Varies	intermittent	38°41'42" 77°15'24"
004	Industrial Stormwater*	BMP	Varies	intermittent	38°41'46" 77°15'24"
005	Industrial Stormwater*	BMP	Varies	intermittent	38°41'47" 77°15'45"
006	Industrial Stormwater*	BMP	Varies	intermittent	38°41'54" 77°15'25"

* See Attachment 5 for the drainage areas for each stormwater outfall and a description of the stormwater treatment and best management practices utilized for each outfall.

11. Sludge Treatment and Disposal Methods:

Solids are generated from filter backwash activities and from the water treatment sedimentation basins. The solids settle in the sedimentation basins and are periodically cleaned out. All solids flow to the quarry for settling.

12. Discharges, Intakes, Monitoring Stations, Other Items in Vicinity of Discharge

TABLE 2

TABLE 2	
VAG840101	Vulcan Materials – Graham Quarry discharges to Little Occoquan Run.
1AOCC006.71	DEQ's Ambient Water Quality Monitoring Station located at the Route 123 Bridge.
VAG110083	Virginia Concrete – Woodbridge Ready Mixed Concrete facility discharges to the Occoquan River downstream of the WTPs.
VAG836074	Riverwalk at Occoquan discharge from a remediation system to Occoquan River.
VAG836076	Shell – Occoquan discharge from a remediation system to Occoquan River.
VAR530051	Tyme N Tyde Marina Industrial Stormwater discharge to Occoquan Bay
VAR530043	APAC – Virginia Occoquan Asphalt Plant Industrial Stormwater discharge to Occoquan River
VAR530052	Occoquan Harbour Marina Industrial Stormwater discharge to Occoquan River
VAR530158	Hoffmasters Marina Industrial Stormwater discharge to Occoquan River

Upstream of this industrial discharge to the Occoquan River, Fairfax Water has their intake from the Occoquan Reservoir.

13. Material Storage:

See Attachment 6 for a list of the materials stored at this facility.

14. Site Inspection:

On May 4, 2010, DEQ performed a site inspection. DEQ staff present included Alison Thompson, Bryant Thomas, and Jennifer O'Reilly. Fairfax Water staff present included Mishelle Noble, Meg Carlson, Craig Rice, Rick Jarrell, Joe Yorke, and Charles Hilliard.

This facility treats water from the Occoquan Reservoir. There is significant work planned for the dam in the next few years. The intake structure will be replaced, the hydroelectric equipment will be removed, and a membrane will be installed to help control seepage. The aeration system in the reservoir will also be replaced once the work on the dam is complete. The system will extend approximately one mile upstream from the dam and will be placed in the deepest part of the channel.

Fairfax Water has scaled back the use of copper sulfate in the reservoir. The chelated copper solution was only applied once during 2009. Fairfax Water staff monitors the water column 24 hours after the application and no quantifiable concentrations of copper are detected.

The Raw Water Pump Station contains 5 pumps. The day of the inspection, the WTP was treating approximately 91 MGD due to the shut down of the Corbalis WTP for maintenance. Potassium Permanganate is stored at the pump station and is added to remove Manganese from the raw water. The water treatment processes are described in Section 10 of the Fact Sheet. Work is planned in the chemical receiving area to improve containment in case of an emergency.

An old Vulcan Materials quarry is used as a sedimentation basin for the backwash water, sedimentation basin solids, and stormwater contributions. The quarry is over 300 feet deep and has an estimated capacity of 0.9 billion gallons. The discharge pipe from the quarry was increased from 16 inches in diameter to 24 inches as part of the Griffith WTP project. The pipe's inlet is submerged several feet below the water surface. The pipe runs from the south edge of the quarry to the north bank of the Occoquan River, where the clarified supernatant discharges from the outlet of the pipe (Outfall 001) and cascades down a steep slope over rip rap to the Occoquan River. Since the inlet is submerged, the discharge is continuous, even though the inflows to the quarry are intermittent in nature. The flow from the quarry is estimated using engineering calculations to be 5.6 MGD with 0.2 MGD additional from stormwater contributions. Compliance samples are collected at Outfall 001.

There are five stormwater outfalls currently included in the VPDES permit and all have had annual effluent monitoring. No significant issues have been noted at any of the outfalls. Some minor issues with the protective vehicle ditch has caused a slight increase in sediment in outfalls 003 and 004, but there are plans to address the problems. There were discussions on whether or not to remove the outfalls from the permit or to keep them in the permit. Since there is a very small chance for finished drinking water to enter the outfall 002 if there was to be a catastrophic failure of the clearwell, a remote chance for chemicals from the loading dock to enter 003 and 004, and chemical storage in the drainage area for 005, it is staff's best professional judgment that the stormwater outfalls remain in this permit. No monitoring shall be required, but the facility shall continue to maintain the Stormwater Pollution Prevention Plan.

15. Receiving Stream Water Quality and Water Quality Standards:**a) Ambient Water Quality Data**

The following is an excerpt from the Planning Statement. The full planning statement can be found in the reissuance file. DEQ ambient monitoring station 1aOCC006.71 located at the Rt. 123 Bridge is approximately 0.3 miles downstream from Outfall 001. This station is located in the Occoquan River segment VAN-A25E_OCC05A02, which extends from 0.5 rivermile upstream of monitoring station 1aOCC006.99 until 0.5 rivermile downstream of monitoring station 1aOCC006.64. This segment is also designated as a portion of the Tidal Freshwater Potomac River under the Chesapeake Bay Program. The following is a monitoring summary for the receiving stream as taken from the 2008 Integrated Assessment:

DEQ ambient water quality monitoring stations 1aOCC006.71, at Route 123 (Gordon Boulevard), and 1aOCC006.99. DEQ Coastal 2000, part of estuarine probabilistic monitoring, station 1aOCC006.64 (sampling was conducted in 2004).

The recreation use is considered not supported. Although the fecal coliform bacteria criteria are no longer being used for assessment purposes, there has been no or insufficient *E. coli* bacteria monitoring along this assessment unit reach. The fecal coliform impairment formerly associated with this assessment unit will remain. The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory.

The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subuse; the thirty day mean is acceptable, however, the seven day mean and instantaneous levels have not been assessed. The wildlife use is considered fully supporting.

b) Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream Occoquan River is located within Section 6 of the Potomac River Basin, and classified as a Class II water.

Class II tidal waters in the Chesapeake Bay and its tidal tributaries must meet dissolved oxygen concentrations as specified in 9VAC25-260-185 and maintain a pH of 6.0-9.0 standard units as specified in 9VAC25-260-50. In the Northern Virginia area, Class II waters must meet the Migratory Fish Spawning and Nursery Designated Use from February 1 through May 31. For the remainder of the year, these tidal waters must meet the Open Water use. The applicable dissolved oxygen concentrations are presented below.

Table 5 - Dissolved Oxygen Criteria (9 VAC 25-260-185)

Designated Use	Criteria Concentration/Duration	Temporal Application
Migratory fish spawning and nursery	7-day mean > 6 mg/L (tidal habitats with 0-0.5 ppt salinity)	February 1 – May 31
	Instantaneous minimum > 5 mg/L	
Open-water ^{1,2}	30-day mean > 5.5 mg/L (tidal habitats with 0-0.5 ppt salinity)	Year-round
	30-day mean > 5 mg/L (tidal habitats with >0.5 ppt salinity)	
	7-day mean > 4 mg/L	
	Instantaneous minimum > 3.2 mg/L at temperatures < 29°C	
	Instantaneous minimum > 4.3 mg/L at temperatures > 29°C	
Deep-water	30-day mean > 3 mg/L	June 1-September 30
	1-day mean > 2.3 mg/L	
	Instantaneous minimum > 1.7 mg/L	
Deep-channel	Instantaneous minimum > 1 mg/L	June 1-September 30

¹See subsection aa of 9 VAC 25-260-310 for site specific seasonal open-water dissolved oxygen criteria applicable to the tidal Mattaponi and Pamunkey Rivers and their tidal tributaries.

²In applying this open-water instantaneous criterion to the Chesapeake Bay and its tidal tributaries where the existing water quality for dissolved oxygen exceeds an instantaneous minimum of 3.2 mg/L, that higher water quality for dissolved oxygen shall be provided antidegradation protection in accordance with section 30 subsection A.2 of the Water Quality Standards.

Attachment 7 details other water quality criteria applicable to the receiving stream.

Ammonia:

Ambient monitoring at the closest monitoring station was scaled back at the Route 123 station. The most recent data from this station is from 2003. The data was evaluated and the 90th percentile pH is 7.84 su and temperature is 22.17°C. The data can be found as part of Attachment 7. The criteria are presented in Attachment 7.

Metals Criteria:

The Water Quality Criteria for some metals are dependent on the receiving stream's hardness (expressed as mg/l calcium carbonate). DEQ's ambient monitoring program collected 12 total hardness samples from January 2000 to February 2003. The average hardness of the receiving stream is 84 mg/L and ranged from 13.6 to 266 mg/l. The hardness-dependent metals criteria shown in Attachment 7.

c) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving streams Occoquan River and the Unnamed Tributaries to the Occoquan River are located within Section 6 of the Potomac Basin. This section has been designated a Class II water with special standards b and y. Note: The NEW-11 special standard has been repealed and is no longer applicable to this receiving stream.

Special Standard “b” (Potomac Embayment Standards) established effluent standards for all sewage plants discharging into Potomac River embayments and for expansions of existing plants discharging into non-tidal tributaries of these embayments. 9VAC25-415, Policy for the Potomac Embayments controls point source discharges of conventional pollutants into the Virginia embayment waters of the Potomac River, and their tributaries, from the fall line at Chain Bridge in Arlington County to the Route 301 bridge in King George County. The regulation sets effluent limits for BOD₅, total suspended solids, phosphorus, and ammonia, to protect the water quality of these high profile waterbodies. The Potomac Embayment Standards are not applied to this industrial discharge since the discharge does not contain the pollutants of concern in appreciable amounts.

Special Standard “y” is the chronic ammonia criterion for tidal freshwater Potomac River and tributaries that enter the tidal freshwater Potomac River from Cockpit Point (below Occoquan Bay) to the fall line at Chain Bridge. During November 1 through February 14 of each year the thirty-day average concentration of total ammonia nitrogen (in mg N/L) shall not exceed, more than once every three years on the average the following chronic ammonia criterion:

$$\left(\frac{0.0577}{1 + 10^{7.688 - \text{pH}}} + \frac{2.487}{1 + 10^{\text{pH} - 7.688}} \right) \times 1.45(10^{0.028(25 - \text{MAX})})$$

MAX = temperature in °C or 7, whichever is greater.

The default design flow for calculating steady state waste load allocations for this chronic ammonia criterion is the 30Q10, unless statistically valid methods are employed which demonstrate compliance with the duration and return frequency of this water quality criterion. This standard is not applicable to this industrial discharge.

d) Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on May 12, 2010, for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened or endangered species were identified within a 2 mile radius of the discharge: Bald Eagle. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and therefore, protect the threatened and endangered species found near the discharge.

The stream that the facility discharges to is within a reach identified as having an Anadromous Fish Use. It is staff's best professional judgment that the proposed limits are protective of this use.

e) Occoquan Site Specific Study Final Report, June 1998, Black & Veatch

During 1993 to 1994, the permittee performed a dye study, a hydrodynamic study, and a biological monitoring study to address water quality issues related to the discharge of filter backwash solids from the Fairfax Water's Occoquan WTP. This WTP is located across the river from the Lorton/Griffith WTP Outfall 001.

Among the findings were:

- 1) The dye study indicated that the mixing zone extends from 300 feet upstream to 1300 feet downstream of the outfalls from the Occoquan plant.
- 2) The hydrodynamic modeling study found that the hydrodynamic characteristics of the Occoquan River below the dam are governed by the flow over the dam. It concluded that the high dissolved copper concentrations in the river were the direct results of copper sulfate added to the Occoquan Reservoir and the discharge from the water treatment plant has no significant impact on the quality of the river below the dam.
- 3) The biological monitoring study found no impairment of fish population in the river and no significant impairment of the benthic macroinvertebrates other than a slight impairment within a small portion of the mixing zone in the immediate vicinity of the outfalls of the Occoquan Plant.

The Occoquan WTP has been decommissioned and is no longer operational.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

During the last reissuance, the receiving stream was classified as Tier 1 because the lower reach of the Occoquan River below the dam is known to have high copper concentrations in the summertime due to Fairfax Water's practice of adding copper sulfate to the reservoir for algae control. Staff determined that this classification is still correct even though copper sulfate usage has been curtailed in recent years. There is also a fish consumption impairment due to PCBs in fish tissue.

Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development :

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLAs) are calculated. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are calculated on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:

Effluent data obtained from Attachment A, the permit application, and the DMRs has been reviewed and determined to be suitable for evaluation. Effluent data were reviewed, and there have been no exceedances of the established limitations. The following pollutants require a wasteload allocation analysis: Total Residual Chlorine. All other Attachment A monitoring was below quantifiable levels.

b) Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The water segment receiving the discharge via Outfall 001 is tidal; therefore the free flowing stream flows are not applicable. For tidal receiving waters, DEQ guidance recommends that the acute WLA is equal to two (2) times the water quality criterion. Staff guidance suggests that the chronic default value for the WLA is 50. The hydrodynamic study performed by the permittee in 1994 indicates dilution in the order of 10 to 1. A 10 to 1 dilution ratio, a more conservative approach, is therefore used in calculating the chronic WLA.

Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent discharged (e.g., total residual chlorine when chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels.

c) Effluent Limitations Toxic Pollutants, Outfall 001 –

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Total Residual Chlorine:

The last three reissuances did not include TRC limits, and no limits for TRC will be included with this reissuance. Based on the volume of the quarry pit, the detention time, and past toxicity test results that passed the decision criteria (Attachment 8), staff's best professional opinion is that no TRC limits are necessary.

2) Metals/Organics:

Attachment A monitoring was completed during the current permit term. No limits are needed.

d) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to total suspended solids (TSS) and pH limitations are proposed. The pH limitations are set at the water quality criteria. The limit for Total Suspended Solids is based on Best Professional Judgment.

e) Effluent Limitations, Outfalls 002, 003, 004, 005, 006 – Storm Water Only Pollutants.

The facility performed annual monitoring for these outfalls during the current permit term and no problems were noted with the results. WTPs are not one of the regulated sectors in the Industrial Stormwater General Permit and it is staff's best professional judgment that annual monitoring is no longer necessary at these outfalls.

f) Effluent Limitations, Outfall 001 – Federal Effluent Guidelines.

There are no effluent guidelines established in 40 CFR for this type of industry.

g) Effluent Limitations and Monitoring Summary.

The effluent limitations are presented in the following table. Limits were established for Total Suspended Solids and pH. Monitoring was established for Flow and Toxicity.

The monitoring frequency was reduced with the last reissuance due to the compliance history. The quarterly monitoring is proposed to continue with this reissuance. Sample Type is in accordance with the recommendations in the VPDES Permit Manual.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19.a. Effluent Limitations/Monitoring Requirements: Outfall 001 - industrial process water discharge

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	1/3M	Estimate
TSS (mg/L)	2	30 mg/L	NA	NA	60 mg/L	1/3M	5G/8H
pH (s.u.)	3	NA	NA	6.0 S.U.	9.0 S.U.	1/3M	Grab
Chronic Toxicity <i>C. dubia</i> – TUc	3	NA	NA	NA	NL	1/YR	24 HC
Chronic Toxicity <i>P. promelas</i> – TUc	3	NA	NA	NA	NL	1/YR	24 HC

The basis for the limitations codes are:

1. Federal Effluent Requirements

2. Best Professional Judgment

3. Water Quality Standards

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/3M = Once every three months.

1/YR = Once every year.

24HC = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 24-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of twenty four (24) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of twenty four (24) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by $\geq 10\%$ or more during the monitored discharge.

5G/8H = Eight Hour Composite – Consisting of five (5) grab samples collected at hourly intervals until the discharge ceases or five (5) grab samples at equal time intervals for the duration of the discharge if less than 8 hours in length.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

b. Effluent Limitations/Monitoring Requirements: Outfalls 002, 003, 004, 005, and 006 – Stormwater Discharges

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

No monitoring is required from these stormwater outfalls. Best Management Practices shall be utilized.

20. Other Permit Requirements :**a) Part I.B. of the permit contains quantification levels and compliance reporting instructions.**

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

b) Permit Section Part I.C., details the requirements for Toxics Management Program.

The VPDES Permit Regulation at 9VAC25-31-210 requires monitoring and 9VAC25-31-220.I, requires limitations in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. A TMP is imposed for municipal facilities with a design rate >1.0 MGD, with an approved pretreatment program or required to develop a pretreatment program, or those determined by the Board based on effluent variability, compliance history, IWC, and receiving stream characteristics.

The facility completed the necessary acute toxicity testing using *Ceriodaphnia dubia* and *Pimephales promelas* (Attachment 8 contains results from Outfall 001). Testing was added to the last reissuance since the Griffith WTP facilities were completely new. It is staff's best professional judgment that biomonitoring is necessary to

determine that the wastewaters generated from the new facility are not toxic. Although the WTP discharges intermittently to the quarry, the discharge from the quarry is continuous. It is staff's best professional opinion that the effluent be evaluated for chronic toxicity in lieu of acute toxicity with this reissuance.

- c) Permit Section Part I.D. details the requirements of a Storm Water Management Plan.

9VAC25-31-10 defines discharges of storm water from municipal treatment plants with design flow of 1.0 MGD or more, or plants with approved pretreatment programs, as discharges of storm water associated with industrial activity. 9VAC25-31-120 requires a permit for these discharges. The pollution Prevention Plan requirements are derived from the VPDES general permit for discharges of storm water associated with industrial activity, 9VAC25-151-10 et seq.

21. Other Special Conditions :

- a) Notification Levels The permittee shall notify the Department as soon as they know or have reason to believe:
- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:
 - (1) One hundred micrograms per liter;
 - (2) Two hundred micrograms per liter for acrolein and acrylonitrile; five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter for antimony;
 - (3) Five times the maximum concentration value reported for that pollutant in the permit application; or
 - (4) The level established by the Board.
 - b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:
 - (1) Five hundred micrograms per liter;
 - (2) One milligram per liter for antimony;
 - (3) Ten times the maximum concentration value reported for that pollutant in the permit application; or
 - (4) The level established by the Board.
- b) Materials Handling/Storage. 9VAC25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorize the Board to regulate the discharge of industrial waste or other waste.
- c) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. Within 90 days of the effective date of this permit, the permittee shall submit for approval an Operations and Maintenance (O&M) Manual or a statement confirming the accuracy and completeness of the current O&M Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- d) Water Quality Criteria Reopener. The VPDES Permit Regulation at 9VAC25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.
- e) Water Quality Criteria Monitoring. State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, subpart 131.11. To ensure that water quality criteria are maintained, the permittee is required to analyze the facility's effluent for the substances noted in Attachment A of this VPDES permit.

Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. Changes to the Permit from the Previously Issued Permit:

- a) Special Conditions:
There are no changes to the special conditions.
- b) Monitoring and Effluent Limitations:
 - 1) Toxicity monitoring was changed from acute toxicity tests to chronic toxicity tests.
 - 2) The annual monitoring for outfalls 002, 003, 004, 005, and 006 was removed. There were no limits associated with these stormwater outfalls.

24. Variances/Alternate Limits or Conditions:

There are no variances or alternate limits or special conditions.

25. Public Notice Information:

First Public Notice Date: 7/7/2010

Second Public Notice Date: 7/14/2010

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3834, alison.thompson@deq.virginia.gov. See Attachment 9 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

26. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):

The segment of the Occoquan River containing the facility's discharge is listed with 2 impairments:

Recreation Use - The following assessment is carried over from the 2006 report, as no *E. coli* monitoring has been collected: Sufficient exceedances of the maximum fecal coliform bacteria criterion (2 of 13 samples - 15.4%) were recorded at DEQ's ambient water quality monitoring station (1aOCC006.71) at the Route 123 bridge to assess this stream segment as not supporting of the recreation use goal for the 2006 water quality assessment.

Fish Consumption Use - The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The advisory, dated 4/19/99 and modified 12/13/04, limits consumption of American eel, bullhead catfish, channel catfish less than eighteen inches long, largemouth bass, anadromous (coastal) striped bass, sunfish species, smallmouth bass, white catfish, white perch, gizzard shad, and yellow perch to no more than two meals per month. The advisory also bans the consumption of carp and channel catfish greater than eighteen inches long. The affected area includes the tidal portions of the following tributaries and embayments from the I-395 bridge (above the Woodrow Wilson Bridge) to the Potomac River Bridge at Route 301: Fourmile Run, Hunting Creek, Little Hunting Creek, Pohick Creek, Accotink Creek, Occoquan River, Neabsco Creek, Powells Creek, Quantico Creek, Chopawamsic Creek, Aquia Creek, and Potomac Creek.

Recreation Use Impairment: (Bacteria) The TMDL is due in 2016.

Fish Consumption Use Impairment: (PCB) This facility was not given a WLA in the Potomac PCB TMDL. The Potomac PCB TMDL was EPA approved on 10/31/2007.

TMDL Reopener: This special condition is to allow the permit to reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

27. Additional Comments:

Previous Board Action(s): None.

Staff Comments: None.

Public Comment: None.

EPA Checklist: The checklist can be found in Attachment 10.

To: Shih-Cheng Chang@WDBRG@DEQ
Cc:
Bcc:
From: Paul E. Herman@WQA@DEQ
Subject: fwd: Lorton WTP - VA0002585
Date: Wednesday, February 2, 2000 10:36:27 EST
Attach: BEYOND.RTF
Certify: N
Priority: Normal
Defer until:
Expires:
Forwarded by:

Shih-Cheng,

One more piece of data....

The drainage area of the Occoquan River at the dam is 570 square miles.
----- Original Text -----

From: Paul E. Herman@WQA@DEQ, on 2/2/2000 10:32 AM:
To: Shih-Cheng Chang@WDBRG@DEQ

Shih-Cheng,

As there have been no changes in the location of the WTP outfall, my May 11, 1994, memo to Raymond Jay remains in effect. The Lorton WTP discharges to the Occoquan River just below the dam. During low flow periods, the inflow into the reservoir is may be exceeded by the withdrawal from the reservoir by the WTP. When this occurs, there is no flow expected to be released through the dam. Therefore, there is no flow in the river at the discharge point.

Please refer to my May 11, 1994, memo concerning this facility for the appropriate flow data to use in the permit development.

If you have any questions, please give me a call.

Paul

MEMORANDUM

RECEIVED

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

NRO

SUBJECT: Flow Frequency Determination
Fairfax County Water Authority, Lorton WTP - VA#0002585

TO: Ray Jay, NRO

FROM: Paul Herman, OWRM-WQAP *Paul*

DATE: May 11, 1994

COPIES: Ron Gregory, Charles Martin, Dale Phillips, Curt Wells,
File

The Fairfax County Water Authority (FCWA), Lorton WTP discharges to the Occoquan River near Occoquan, VA. Stream flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

The USGS operated a continuous record gage on the Occoquan River near Occoquan, VA (#01657500) from 1913-1916, 1920-1923, and 1937-1956. The gage was located on a stretch of the river which has been inundated by the reservoir. The gage was selected to represent the flow entering the reservoir. The flow frequencies for the gage and the discharge point are presented below. The values at the discharge point were determined by drainage area proportions and do not address any discharges or springs lying between the dam and the discharge point. The withdrawal by the FCWA from the Occoquan Reservoir must be subtracted from the flow frequencies. The maximum withdrawal during high flow periods and low flow periods must be considered.

Occoquan River near Occoquan, VA (#01657500):

Drainage Area	=	570	mi ²	
1Q10	=	5.0	cfs	
7Q10	=	8.4	cfs	
High Flow 1Q10	=	35	cfs	(January-May)
High Flow 7Q10	=	50	cfs	(January-May)
30Q5	=	19	cfs	
HM	=	77	cfs	

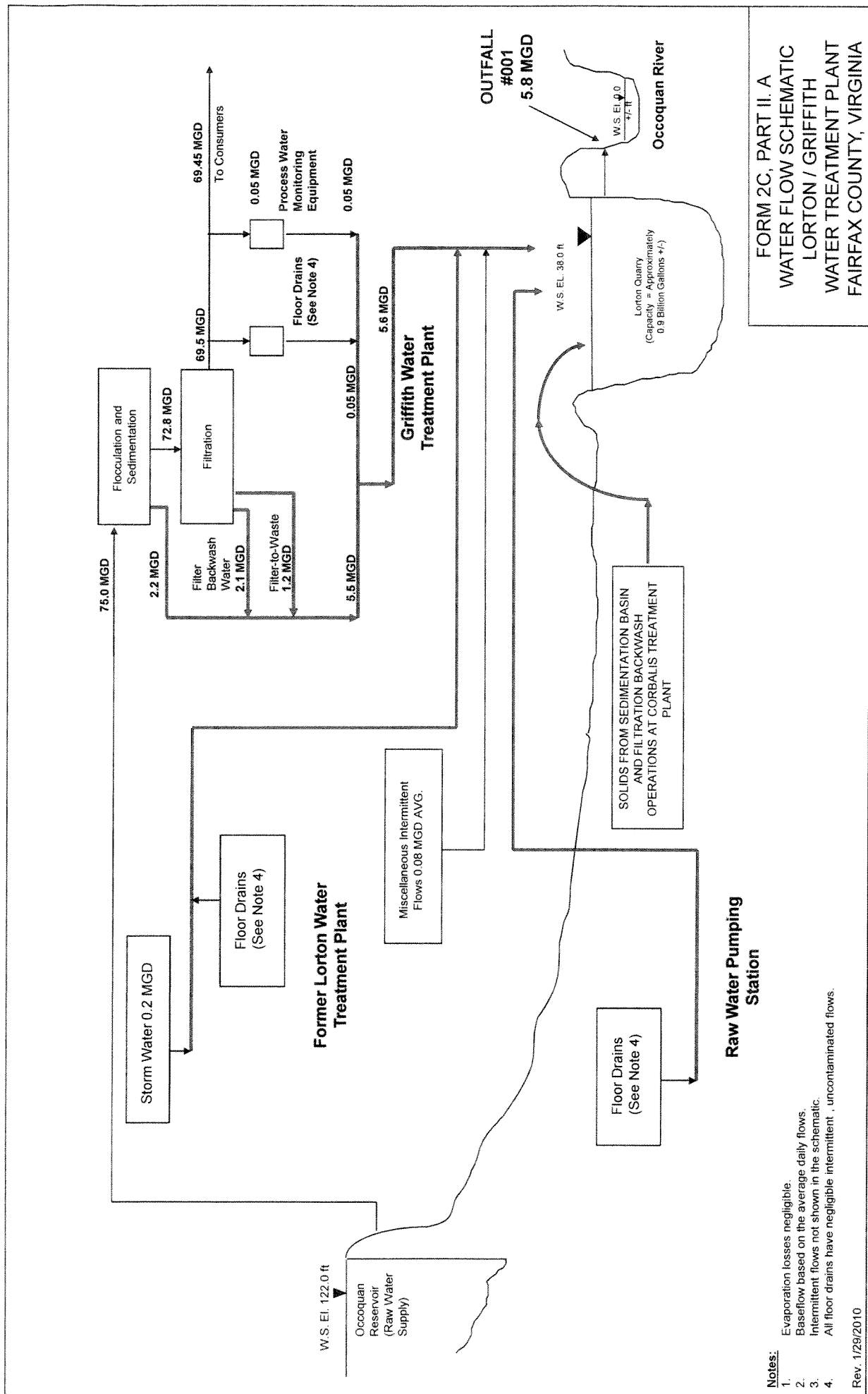
FCWA water withdrawal:

Maximum withdrawal, high flow = 108.6 cfs (May 1991)
Maximum withdrawal, low flow = 124.8 cfs (July 1988)

Since the maximum withdrawal during the high flow and low flow periods exceeds the flow into the Occoquan Reservoir, the flow frequencies are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, and high flow 7Q10. The harmonic mean is undefined.

The Occoquan River is tidal at the discharge point. You may want to contact OWRM-Permits for the dilution factors to be used when determining the effluent limitations for the permit.

If you have any questions concerning this analysis, please let me know.



FORM 2C, PART II. A
 WATER FLOW SCHEMATIC
 LORTON / GRIFFITH
 WATER TREATMENT PLANT
 FAIRFAX COUNTY, VIRGINIA

Additional Information to FORM 2C, Part II.C.

Table 2: Intermittent or Seasonal Discharges

EPA I.D. Number: VAR000512939

VPDES Permit Number: VA0002585

1. OUTFALL NUMBER (list)	2. OPERATION(S) CONTRIBUTION FLOW (list)	Facility***	3. FREQUENCY		4. FLOW				c. DURATION (days)
			a. DAYS PER WEEK (specify average)	b. MONTHS PER YEAR (specify average)	a. FLOW RATE (mgd)		b. TOTAL VOLUME (specify with units)		
					1. Long term average	2. Maximum Daily	1. Long term average	2. Maximum Daily	
001	Flocculation-Sedimentation Basin Dewatering	GWTP	NA	2X/YR	NA	NA	23,804,590 gallons/year	5,951,148 gpd	2 days*
001	Ozone Contactor Dewatering	GWTP	NA	1X/YR	NA	NA	1,129,579 gallons/year	564,790 gpd	2 days*
001	Ozone Contactor Filter Influent Flume Dewatering	GWTP	NA	1X/YR	NA	NA	697,110 gallons/year	348,555 gpd	2 days*
001	Ozone Contactor Effluent Flume Dewatering	GWTP	NA	1X/YR	NA	NA	60,608 gallons/year	30,304 gpd	2 days*
001	Filter Influent Flume Dewatering	GWTP	NA	1X/YR	NA	NA	210,678 gallons/year	105,339 gpd	2 days*
001	Filter Influent Splitter Box Dewatering	GWTP	NA	1X/YR	NA	NA	17,425 gallons/year	8,713 gpd	2 days*
001	Containment Sump Pump Discharge	GWTP	NA	Varies	NA	NA	5,000 gallons/year	500 gpd	10 days
001	Filter Box Dewatering	GWTP	NA	1X/YR	NA	NA	2,179,165 gallons/year	1,089,583 gpd	2 days*
001	Deck Drain for Stormwater Collection at Ozone Contactor	GWTP	NA	40" rainfall/YR	NA	NA	123,670 gallons/year	NA	117 days**
001	Mechanical Equipment Condensate in Operations Building	GWTP	NA	4 MO/YR	2,592 gpd	NA	316,224 gallons/year	NA	122 days
001	Mechanical Equipment Condensate in Finished Water Pump Station	GWTP	NA	4 MO/YR	1,728 gpd	NA	210,816 gallons/year	NA	122 days
001	Storm Water Runoff	LWTP	NA	40" rainfall/YR	NA	NA	73,000,000 gallons/year	NA	117 days**
001	Solids from Corbalis Plant	CWTP	NA	4MO/YR	NA	NA	40,000 CY/year	NA	NA

* Assumes one process train dewatered per day

** Based on Average Annual Days of Rain in Northern Virginia

*** GWTP = Griffith Water Treatment Plant; LWTP = Lorton Water Treatment Plant; CWTP = Corbalis Water Treatment Plant

Additional Information for FORM 2C, Part II.B.

Table 1: Description of Each Outfall

EPA I.D. Number: VAR000512939

VPDES Permit Number: VA0002585

1. OUT-FALL NO (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT	
	a. OPERATION (list)	Facility**	a. DESCRIPTION	b. LIST OF CODES FROM TABLE 2C-1
001	Floor Drains at Raw Water Pump Station	GRWPS	Sedimentation	1-U
001	Flocculation-Sedimentation Basin	GWTP	Sedimentation	1-U
001	Flocculation-Sedimentation Basin	GWTP	Sedimentation	1-U
001	Ozone Contactor Dewatering	GWTP	Sedimentation	1-U
001	Ozone Contactor Filter Influent	GWTP	Sedimentation	1-U
001	Ozone Contactor Effluent	GWTP	Sedimentation	1-U
001	Filter Backwash	GWTP	Sedimentation	1-U
001	Filter-To-Waste	GWTP	Sedimentation	1-U
001	Filter Influent Flume Dewatering	GWTP	Sedimentation	1-U
001	Filter Influent Splitter Box Dewatering	GWTP	Sedimentation	1-U
001	Containment Sump Pump Discharge	GWTP	Sedimentation	1-U
001	Filter Box Dewatering	GWTP	Sedimentation	1-U
001	Continuous Monitoring Equipment	GWTP	Sedimentation	1-U
001	Deck Drain for Storm Water from Ozone Contactors	GWTP	Sedimentation	1-U
001	Floor Drains in Operations Building	GWTP	Sedimentation	1-U
001	Floor Drains in other buildings	GWTP	Sedimentation	1-U
001	Mechanical Equipment Condensate	GWTP	Sedimentation	1-U
001	Foundation Drainage	GWTP	Sedimentation	1-U
001	Site Storm Water Runoff	LWTP	Sedimentation	1-U
001	Floor Drains in Butler Buildings	LWTP	Sedimentation	1-U
001	Solids from Corbalis Plant	CWTP	Sedimentation	1-U

* Intermittent flows are detailed in Table 2: Intermittent or Seasonal Discharges

** GWTP = Griffith Water Treatment Plant; LWTP = Lorton Water Treatment Plant; GRWPS = Griffith Raw Water Pump Station; CWTP = Corbalis Water Treatment Plant

NPDES PERMIT RATING WORK SHEET

VPDES NO. : VA0002585

<input type="checkbox"/>	Regular Addition
<input type="checkbox"/>	Discretionary Addition
<input checked="" type="checkbox"/>	Score change, but no status Change
<input type="checkbox"/>	Deletion

Facility Name: Fairfax Water – Lorton/Griffith WTPCity / County: FairfaxReceiving Water: Occoquan RiverReach Number: VAN-A25E

Is this facility a steam electric power plant (sic =4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)

2. A nuclear power Plant

3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

☐ YES; score is 700 (stop here)☒ NO; (continue)☐ Yes; score is 600 (stop here) ☒ NO; (continue)**FACTOR 1: Toxic Pollutant Potential**
 PCS SIC Code: _____ Primary Sic Code: 4941 Other Sic Codes: _____
 Industrial Subcategory Code: 000 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
<input type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	15	<input checked="" type="checkbox"/> 7.	7	35
<input type="checkbox"/> 1.	1	5	<input type="checkbox"/> 4.	4	20	<input type="checkbox"/> 8.	8	40
<input type="checkbox"/> 2.	2	10	<input type="checkbox"/> 5.	5	25	<input type="checkbox"/> 9.	9	45
			<input type="checkbox"/> 6.	6	30	<input type="checkbox"/> 10.	10	50

Code Number Checked: 7**Total Points Factor 1:** 35**FACTOR 2: Flow/Stream Flow Volume** (Complete either Section A or Section B; check only one)

Section A – Wastewater Flow Only considered

Wastewater Type (see Instructions)	Code	Points
Type I: Flow < 5 MGD	<input type="checkbox"/> 11	0
Flow 5 to 10 MGD	<input type="checkbox"/> 12	10
Flow > 10 to 50 MGD	<input type="checkbox"/> 13	20
Flow > 50 MGD	<input type="checkbox"/> 14	30
Type II: Flow < 1 MGD	<input type="checkbox"/> 21	10
Flow 1 to 5 MGD	<input type="checkbox"/> 22	20
Flow > 5 to 10 MGD	<input type="checkbox"/> 23	30
Flow > 10 MGD	<input type="checkbox"/> 24	50
Type III: Flow < 1 MGD	<input type="checkbox"/> 31	0
Flow 1 to 5 MGD	<input type="checkbox"/> 32	10
Flow > 5 to 10 MGD	<input type="checkbox"/> 33	20
Flow > 10 MGD	<input type="checkbox"/> 34	30

Section B – Wastewater and Stream Flow Considered

Wastewater Type (see Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow	Code	Points
Type I/III:	< 10 %	<input type="checkbox"/> 41	0
	10 % to < 50 %	<input type="checkbox"/> 42	10
	> 50%	<input type="checkbox"/> 43	20
Type II:	< 10 %	<input type="checkbox"/> 51	0
	10 % to < 50 %	<input checked="" type="checkbox"/> 52	20
	> 50 %	<input type="checkbox"/> 53	30

Code Checked from Section A or B: 5**Total Points Factor 2:** 20

NPDES PERMIT RATING WORK SHEET

FACTOR 3: Conventional Pollutants

(only when limited by the permit)

A. Oxygen Demanding Pollutants: (check one) ☐ BOD ☐ COD ☐ Other: _____

Permit Limits: (check one)

		Code	Points
<input type="checkbox"/>	< 100 lbs/day	1	0
<input type="checkbox"/>	100 to 1000 lbs/day	2	5
<input type="checkbox"/>	> 1000 to 3000 lbs/day	3	15
<input type="checkbox"/>	> 3000 lbs/day	4	20

Code Number Checked: NA**Points Scored:** 0

B. Total Suspended Solids (TSS)

Permit Limits: (check one)

		Code	Points
<input type="checkbox"/>	< 100 lbs/day	1	0
<input checked="" type="checkbox"/>	100 to 1000 lbs/day	2	5
<input type="checkbox"/>	> 1000 to 5000 lbs/day	3	15
<input type="checkbox"/>	> 5000 lbs/day	4	20

Code Number Checked: 2**Points Scored:** 5C. Nitrogen Pollutants: (check one) ☐ Ammonia ☐ Other: _____

Permit Limits: (check one)

	Nitrogen Equivalent	Code	Points
<input type="checkbox"/>	< 300 lbs/day	1	0
<input type="checkbox"/>	300 to 1000 lbs/day	2	5
<input type="checkbox"/>	> 1000 to 3000 lbs/day	3	15
<input type="checkbox"/>	> 3000 lbs/day	4	20

Code Number Checked: NA**Points Scored:** 0**Total Points Factor 3:** 5**FACTOR 4: Public Health Impact**

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this include any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above reference supply.

☐ YES; (If yes, check toxicity potential number below)☒ NO; (If no, go to Factor 5)

Determine the *Human Health* potential from Appendix A. Use the same SIC doe and subcategory reference as in Factor 1. (Be sure to use the *Human Health* toxicity group column – check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
<input type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	0	<input type="checkbox"/> 7.	7	15
<input type="checkbox"/> 1.	1	0	<input type="checkbox"/> 4.	4	0	<input type="checkbox"/> 8.	8	20
<input type="checkbox"/> 2.	2	0	<input type="checkbox"/> 5.	5	5	<input type="checkbox"/> 9.	9	25
			<input type="checkbox"/> 6.	6	10	<input type="checkbox"/> 10.	10	30

Code Number Checked: NA**Total Points Factor 4:** 0

NPDES PERMIT RATING WORK SHEET

FACTOR 5: Water Quality Factors

- A. *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-base federal effluent guidelines, or technology-base state effluent guidelines), or has a wasteload allocation been to the discharge*

	Code	Points
<input type="checkbox"/> YES	1	10
<input checked="" type="checkbox"/> NO	2	0

- B. *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

	Code	Points
<input checked="" type="checkbox"/> YES	1	0
<input type="checkbox"/> NO	2	5

- C. *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

	Code	Points
<input type="checkbox"/> YES	1	10
<input checked="" type="checkbox"/> NO	2	0

Code Number Checked: A 2 B 1 C 2
Points Factor 5: A 0 + B 0 + C 0 = 0

FACTOR 6: Proximity to Near Coastal Waters

- A. Base Score: Enter flow code here (from factor 2) 52

Check appropriate facility HPRI code (from PCS):

HPRI#	Code	HPRI Score
<input type="checkbox"/> 1	1	20
<input type="checkbox"/> 2	2	0
<input checked="" type="checkbox"/> 3	3	30
<input type="checkbox"/> 4	4	0
<input type="checkbox"/> 5	5	20

HPRI code checked : 3

Base Score (HPRI Score): 30 X (Multiplication Factor) 0.3 = 0.9

Enter the multiplication factor that corresponds to the flow code: 0.3

Flow Code	Multiplication Factor
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

- B. Additional Points – NEP Program

For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

Code	Points
<input type="checkbox"/> 1	10
<input checked="" type="checkbox"/> 2	0

- C. Additional Points – Great Lakes Area of Concern

For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 area's of concern (see instructions)?

Code	Points
<input type="checkbox"/> 1	10
<input checked="" type="checkbox"/> 2	0

Code Number Checked: A 3 B 2 C 2
Points Factor 6: A 9 + B 0 + C 0 = 9

NPDES PERMIT RATING WORK SHEET

SCORE SUMMARY

<u>Factor</u>	<u>Description</u>	<u>Total Points</u>
1	Toxic Pollutant Potential	35
2	Flows / Streamflow Volume	20
3	Conventional Pollutants	5
4	Public Health Impacts	0
5	Water Quality Factors	0
6	Proximity to Near Coastal Waters	9
TOTAL (Factors 1 through 6)		69

S1. Is the total score equal to or greater than 80 ☐ YES; (Facility is a Major) ☒ NO

S2. If the answer to the above questions is no, would you like this facility to be discretionary major?

☒ NO

☐ YES; (Add 500 points to the above score and provide reason below:

Reason: _____

NEW SCORE : 69

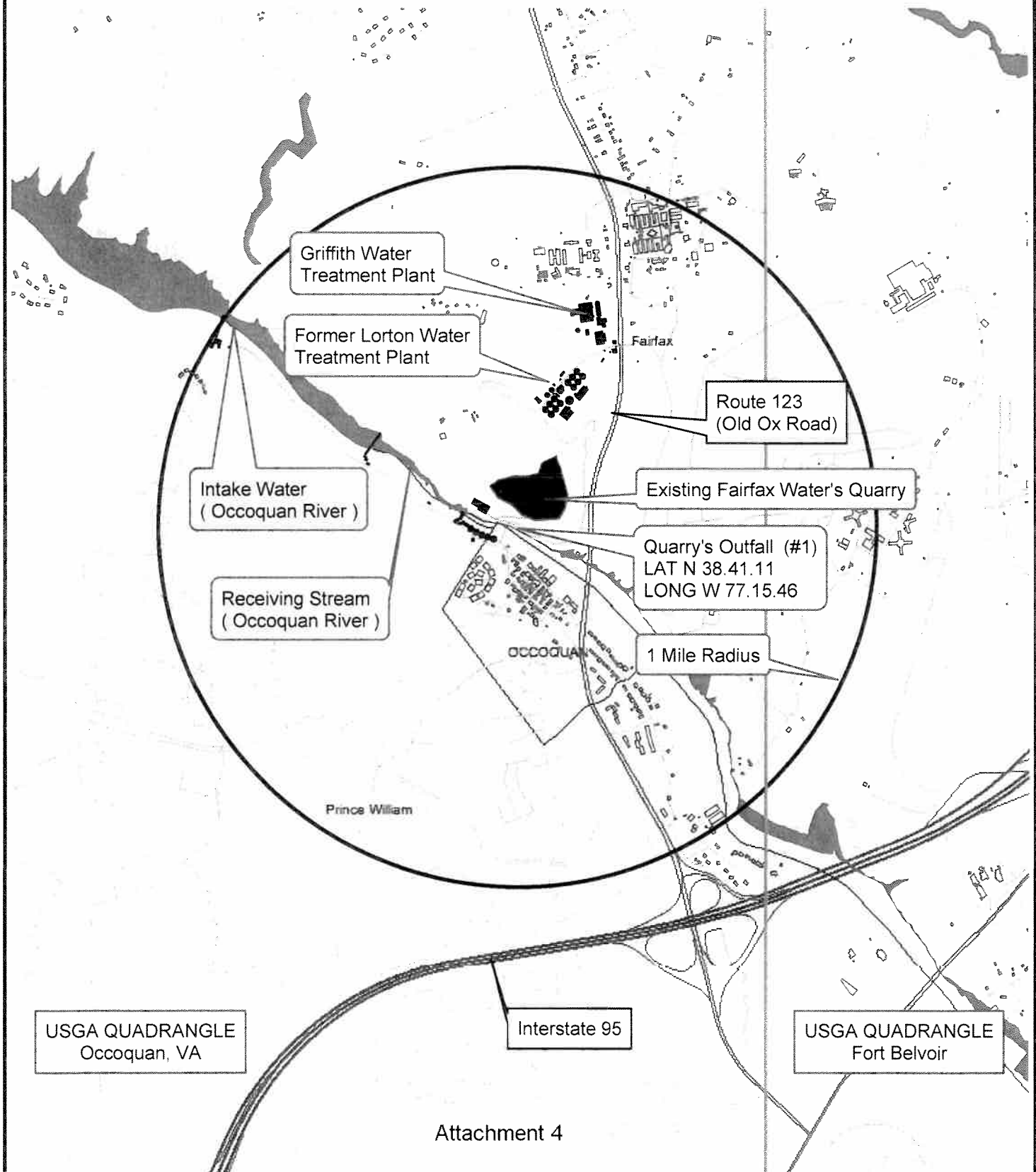
OLD SCORE : 69

Permit Reviewer's Name : Alison Thompson

Phone Number: (703)583-3834

Date: 5/12/10

FORM 1, PART XI. "MAP"
Location Map for Lorton / Griffith WTP Facilities
VPDES Permit
FAIRFAX WATER



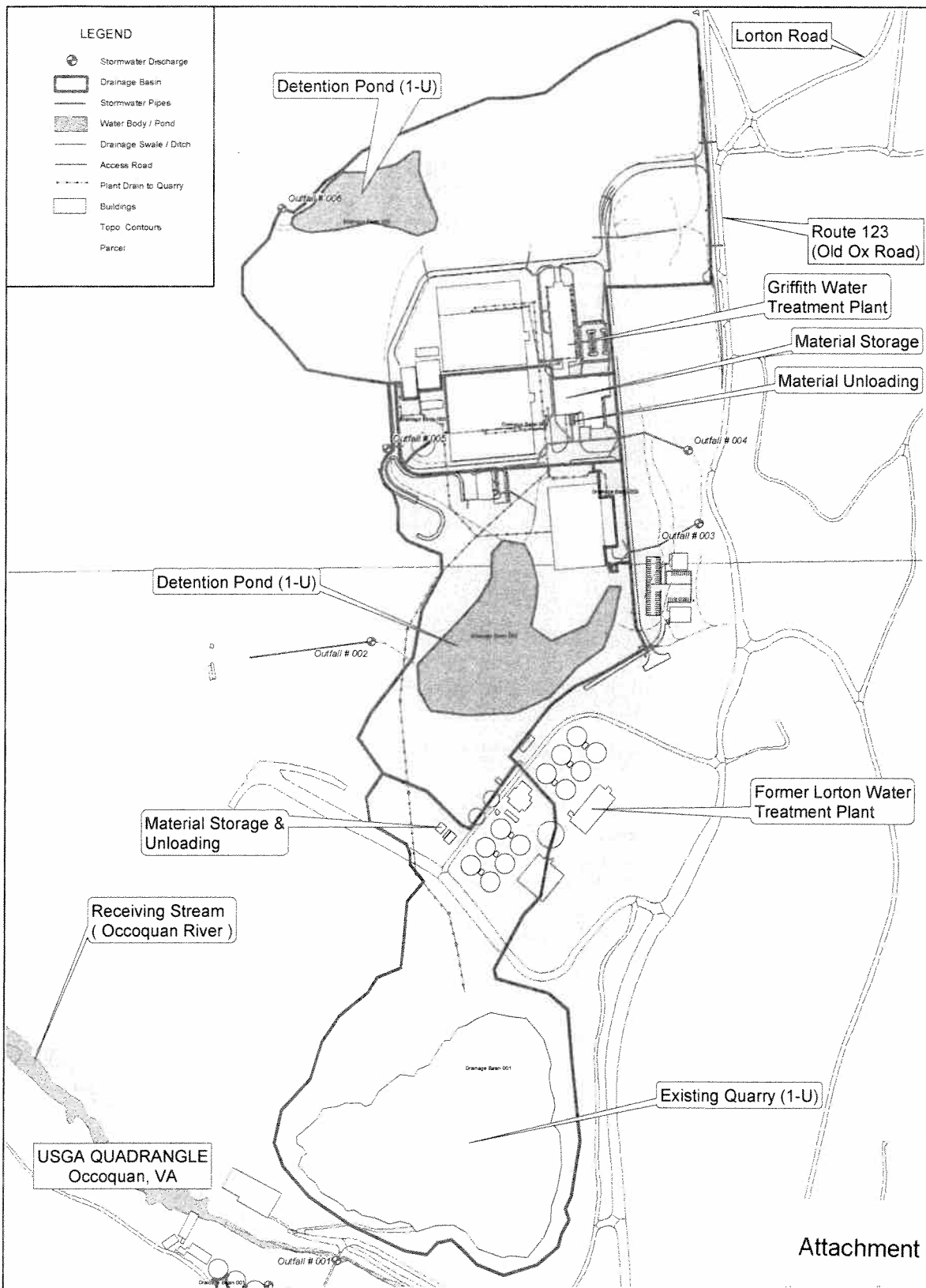
Attachment 4

Fairfax Water

Virginia State Plain, North, NAD-83

Scale:	1:24,000
Date Printed:	11/8/2004
USGS Quad:	Griffith Site Map.mxd
Created By:	M. Doyle, PE

FORM 2F, PART III, "Site Drainage Map" VPDES Permit



Attachment 5

Additional Information for FORM 2F, Part IV.C.

Table 5: Description of Area of each Outfall

EPA I.D. Number: VAR000512939

VPDES Permit Number: VA0002585

Outfall Number	Treatment	List codes from Table 2F-1
001	One stormwater detention basin (0.9 Billion Gallons) provides control measures to reduce pollutants in stormwater runoff	1-U
002	One stormwater detention basin (7.9 Acres) provides control measures to reduce pollutants in stormwater runoff	1-U
003	Control measures include operator training, operator monitoring, leak detection equipment and containment basins.	
004	Control measures include operator training, operator monitoring, leak detection equipment and containment basins.	
005	Control measures include operator training, operator monitoring, leak detection equipment and containment basins.	
006	One stormwater detention basin (2.7 Acres) provides control measures to reduce pollutants in stormwater runoff	1-U

Additional Information for FORM 2F, Part IV.A.

Table 4: Description of Area of each Outfall

EPA I.D. Number: VAR000512939

VPDES Permit Number: VA0002585

Outfall Number	Area of Impervious Surface (Acres)	Total Area Drained (Acres)	Additional Comments
001	4.0	40.8	
002	1.8	27.4	
003	0.2	0.8	
004	3.8	7.5	Includes 2.1 acres of open tankage which captures rainfall and prevents stormwater discharge
005	0.3	1.2	
006	5.1	50.1	Includes 2.1 acres of open tankage which captures rainfall and prevents stormwater discharge

Additional Information or FORM 2C, Part VI
Table 3: Description of Each Outfall
EPA I.D. Number: VAR000512939
VPDES Permit Number: VA0002585

**Description of storage and containment practices for
Chemicals and Fuels Stored On-site**

Facility*	Chemical	Amount	Units	Location	Containment	Drains	Liquid?
GRWPS	Potassium Permanganate	33,000	Pounds	Inside	Yes	No	No
GWTP	Granular Activated Carbon	97,100	Cubic Feet	Inside	Yes	Yes, To Quarry	No
GWTP	Cationic Polymer	7,500	Gallons	Inside	Yes	No	Yes
GWTP	Sodium Hypochlorite	63,000	Gallons	Inside	Yes	No	Yes
GWTP	Sodium Bisulfite	7,500	Gallons	Inside	Yes	No	Yes
GWTP	Hydrofluosilicic Acid	10,000	Gallons	Inside	Yes	No	Yes
GWTP	Sodium Hydroxide	39,000	Gallons	Inside	Yes	No	Yes
GWTP	Phosphoric Acid	10,000	Gallons	Inside	Yes	No	Yes
GWTP	Polyaluminum Chloride	88,000	Gallons	Inside	Yes	No	Yes
GWTP	Aqua Ammonia	16,000	Gallons	Outside	Yes	No	Yes
GWTP	Liquid Oxygen	13,000	Gallons	Outside	No	No	Yes**
GWTP	Heating Oil No.2	10,000	Gallons	Outside	Yes	No	Yes
LWTP	Copper Sulfate Earth Tec	2,750	Gallons	Inside	Yes	Yes, To Quarry***	Yes
LWTP	Potassium Permanganate	18,000	Pounds	Inside	Yes	Yes, To Quarry***	No
LWTP	Copper Sulfate Solid	32,000	Pounds	Inside	No	Yes, To Quarry***	No
LWTP	Used Oil	500	Gallons	Inside	No	Yes, To Quarry***	No
LWTP	Gasoline	4,000	Gallons	Outside (below grade)	No	No, w/ Leak Det.	Yes
LWTP	Heating Oil No.2	5,550	Gallons	Outside	Yes	No	Yes
LWTP	Diesel	2,000	Gallons	Outside (below grade)	No	No, w/ Leak Det.	Yes
* GWTP = Griffith Water Treatment Plant; GRWPS = Griffith Raw Water Pump Station; LWTP = Lorton Water Treatment Plant							
** Liquid Oxygen vaporizes upon exposure to ambient air.							
*** Floor drains referenced are normally plugged and only opened to allow non-contaminated potable water to enter.							

Attachment 7

FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Lorton/Griffith WTP

Permit No.: VA0002585

Receiving Stream: Occoquan River

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO₃) = 84 mg/L
 90% Temperature (Annual) = 22.17 deg C
 90% Temperature (Wet season) = deg C
 90% Maximum pH = 7.84 SU
 10% Maximum pH = SU
 Tier Designation (1 or 2) = 1
 Public Water Supply (PWS) Y/N? = n
 Trout Present Y/N? = n
 Early Life Stages Present Y/N? = y

Mixing Information

Annual - 1Q10 Mix = 100 %
 - 7Q10 Mix = 100 %
 - 30Q10 Mix = 100 %
 Wet Season - 1Q10 Mix = 100 %
 - 30Q10 Mix = 100 %
 Harmonic Mean = 9 MGD

Effluent Information

Mean Hardness (as CaCO₃) = 104 mg/L
 90% Temp (Annual) = 22.17 deg C
 90% Temp (Wet season) = deg C
 90% Maximum pH = 7.6 SU
 10% Maximum pH = SU
 Discharge Flow = 1 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)
Acenaphthene	0	--	--	na	9.9E+02	--	--	na	9.9E+03	--	--	--	--	--	--	na
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+01	--	--	--	--	--	--	na
Acrylonitrile ^c	0	--	--	na	2.5E+00	--	--	na	2.5E+01	--	--	--	--	--	--	na
Aldrin ^c	0	3.0E+00	--	na	5.0E-04	3.0E+01	--	na	5.0E-03	--	--	--	--	3.0E+01	--	na
Ammonia-N (mg/l) (Yearly)	0	1.19E+01	1.92E+00	na	--	1.2E+02	1.9E+01	na	--	--	--	--	--	1.2E+02	1.9E+01	na
Ammonia-N (mg/l) (High Flow)	0	1.19E+01	3.15E+00	na	--	1.2E+02	3.1E+01	na	--	--	--	--	--	1.2E+02	3.1E+01	na
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+05	--	--	--	--	--	--	na
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+03	--	--	--	--	--	--	na
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+03	1.5E+03	na	--	--	--	--	--	3.4E+03	1.5E+03	na
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
Benzene ^c	0	--	--	na	5.1E+02	--	--	na	5.1E+03	--	--	--	--	--	--	na
Benzidine ^c	0	--	--	na	2.0E-03	--	--	na	2.0E-02	--	--	--	--	--	--	na
Benzo (a) anthracene ^c	0	--	--	na	1.8E-01	--	--	na	1.8E+00	--	--	--	--	--	--	na
Benzo (b) fluoranthene ^c	0	--	--	na	1.8E-01	--	--	na	1.8E+00	--	--	--	--	--	--	na
Benzo (k) fluoranthene ^c	0	--	--	na	1.8E-01	--	--	na	1.8E+00	--	--	--	--	--	--	na
Benzo (a) pyrene ^c	0	--	--	na	1.8E-01	--	--	na	1.8E+00	--	--	--	--	--	--	na
Bis(2-Chloroethyl) Ether ^c	0	--	--	na	5.3E+00	--	--	na	5.3E+01	--	--	--	--	--	--	na
Bis(2-Chloroisopropyl) Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+05	--	--	--	--	--	--	na
Bis 2-Ethylhexyl Phthalate ^c	0	--	--	na	2.2E+01	--	--	na	2.2E+02	--	--	--	--	--	--	na
Bromofom ^c	0	--	--	na	1.4E+03	--	--	na	1.4E+04	--	--	--	--	--	--	na
Butylbenzophthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+04	--	--	--	--	--	--	na
Cadmium	0	3.3E+00	1.0E+00	na	--	3.3E+01	1.0E+01	na	--	--	--	--	--	3.3E+01	1.0E+01	na
Carbon Tetrachloride ^c	0	--	--	na	1.6E+01	--	--	na	1.6E+02	--	--	--	--	--	--	na
Chlordane ^c	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+01	4.3E-02	na	8.1E-02	--	--	--	--	2.4E+01	4.3E-02	na
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+06	2.3E+06	na	--	--	--	--	--	8.6E+06	2.3E+06	na

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+02	1.1E+02	na	--	--	--	--	--	1.9E+02	1.1E+02	na
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+04	--	--	--	--	--	--	1.6E+04

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)
Chlorodibromomethane ^c	0	--	--	na	1.3E+02	--	--	na	1.3E+03	--	--	--	--	--	--	na
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+05	--	--	--	--	--	--	na
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+04	--	--	--	--	--	--	na
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+03	--	--	--	--	--	--	na
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-01	4.1E-01	na	--	--	--	--	--	8.3E-01	4.1E-01	na
Chromium III	0	5.0E+02	6.6E+01	na	--	5.0E+03	6.6E+02	na	--	--	--	--	--	5.0E+03	6.6E+02	na
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+02	1.1E+02	na	--	--	--	--	--	1.6E+02	1.1E+02	na
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	na
Chrysene ^c	0	--	--	na	1.8E-02	--	--	na	1.8E-01	--	--	--	--	--	--	na
Copper	0	1.2E+01	7.9E+00	na	--	1.2E+02	7.9E+01	na	--	--	--	--	--	1.2E+02	7.9E+01	na
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+02	5.2E+01	na	1.6E+05	--	--	--	--	2.2E+02	5.2E+01	na
DDD ^c	0	--	--	na	3.1E-03	--	--	na	3.1E-02	--	--	--	--	--	--	na
DDE ^c	0	--	--	na	2.2E-03	--	--	na	2.2E-02	--	--	--	--	--	--	na
DDT ^c	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+01	1.0E-02	na	2.2E-02	--	--	--	--	1.1E+01	1.0E-02	na
Demeton	0	--	1.0E-01	na	--	--	1.0E+00	na	--	--	--	--	--	--	1.0E+00	na
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E+00	1.7E+00	na	--	--	--	--	--	1.7E+00	1.7E+00	na
Dibenz(a,h)anthracene ^c	0	--	--	na	1.8E-01	--	--	na	1.8E+00	--	--	--	--	--	--	na
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+04	--	--	--	--	--	--	na
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+03	--	--	--	--	--	--	na
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+03	--	--	--	--	--	--	na
3,3-Dichlorobenzidine ^c	0	--	--	na	2.8E-01	--	--	na	2.8E+00	--	--	--	--	--	--	na
Dichlorobromomethane ^c	0	--	--	na	1.7E+02	--	--	na	1.7E+03	--	--	--	--	--	--	na
1,2-Dichloroethane ^c	0	--	--	na	3.7E+02	--	--	na	3.7E+03	--	--	--	--	--	--	na
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+04	--	--	--	--	--	--	na
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+05	--	--	--	--	--	--	na
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+03	--	--	--	--	--	--	na
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
1,2-Dichloropropane ^c	0	--	--	na	2.1E+02	--	--	na	2.1E+03	--	--	--	--	--	--	na
1,3-Dichloropropene ^c	0	--	--	na	5.4E-04	2.4E+00	5.6E-01	na	5.4E-03	--	--	--	--	2.4E+00	5.6E-01	na
Dieldrin ^c	0	2.4E-01	5.6E-02	na	4.4E+04	--	--	na	4.4E+05	--	--	--	--	--	--	na
Diethyl Phthalate	0	--	--	na	8.5E+02	--	--	na	8.5E+03	--	--	--	--	--	--	na
2,4-Dimethylphenol	0	--	--	na	1.1E+06	--	--	na	1.1E+07	--	--	--	--	--	--	na
Dimethyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+04	--	--	--	--	--	--	na
Di-n-Butyl Phthalate	0	--	--	na	5.3E+03	--	--	na	5.3E+04	--	--	--	--	--	--	na
2,4-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+03	--	--	--	--	--	--	na
2-Methyl-4,6-Dinitrophenol	0	--	--	na	3.4E+01	--	--	na	3.4E+02	--	--	--	--	--	--	na
2,4-Dinitrotoluene ^c	0	--	--	na	5.1E-08	--	--	na	5.1E-07	--	--	--	--	--	--	na
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	na	2.0E+00	--	--	na	2.0E+01	--	--	--	--	--	--	na
1,2-Diphenylhydrazine ^c	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E+00	5.6E-01	na	8.9E+02	--	--	--	--	2.2E+00	5.6E-01	na
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E+00	5.6E-01	na	8.9E+02	--	--	--	--	2.2E+00	5.6E-01	na
Beta-Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E+00	5.6E-01	--	--	--	--	--	--	2.2E+00	5.6E-01	--
Alpha + Beta Endosulfan	0	--	--	na	8.9E+01	--	--	na	8.9E+02	--	--	--	--	--	--	na
Endosulfan Sulfate	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-01	3.6E-01	na	6.0E-01	--	--	--	--	8.6E-01	3.6E-01	na
Endrin	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E+00	--	--	--	--	--	--	--	--	--	--	na	3.0E+00

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+04	--	--	--	--	--	--	--	--	--	--	na	2.1E+04
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+04	--	--	--	--	--	--	--	--	--	--	na	5.3E+04
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Heptachlor ^C	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E+00	3.8E-02	na	7.9E-03	5.2E+00	3.8E-02	na	7.9E-03	5.2E+00	3.8E-02	na	7.9E-03	5.2E+00	3.8E-02	na	7.9E-03
Heptachlor Epoxide ^C	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E+00	3.8E-02	na	3.9E-03	5.2E+00	3.8E-02	na	3.9E-03	5.2E+00	3.8E-02	na	3.9E-03	5.2E+00	3.8E-02	na	3.9E-03
Hexachlorobenzene ^C	0	--	--	na	2.9E-03	--	--	na	2.9E-02	--	--	--	--	--	--	--	--	--	--	na	2.9E-02
Hexachlorobutadiene ^C	0	--	--	na	1.8E+02	--	--	na	1.8E+03	--	--	--	--	--	--	--	--	--	--	na	1.8E+03
Hexachlorocyclohexane																					
Alpha-BHC ^C	0	--	--	na	4.9E-02	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Hexachlorocyclohexane																					
Beta-BHC ^C	0	--	--	na	1.7E-01	--	--	na	1.7E+00	--	--	--	--	--	--	--	--	--	--	na	1.7E+00
Hexachlorocyclohexane																					
Gamma-BHC ^C (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E+00	--	na	1.8E+01	--	--	--	--	--	--	--	--	9.5E+00	--	na	1.8E+01
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
Hexachloroethane ^C	0	--	--	na	3.3E+01	--	--	na	3.3E+02	--	--	--	--	--	--	--	--	--	--	na	3.3E+02
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+01	na	--	--	--	--	--	--	--	--	--	--	2.0E+01	na	--
Indeno (1,2,3-cd) pyrene ^C	0	--	--	na	1.8E-01	--	--	na	1.8E+00	--	--	--	--	--	--	--	--	--	--	na	1.8E+00
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone ^C	0	--	--	na	9.6E+03	--	--	na	9.6E+04	--	--	--	--	--	--	--	--	--	--	na	9.6E+04
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	9.8E+01	1.1E+01	na	--	9.8E+02	1.1E+02	na	--	9.8E+02	1.1E+02	na	--	9.8E+02	1.1E+02	na	--	9.8E+02	1.1E+02	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E+00	na	--	--	--	--	--	--	--	--	--	--	1.0E+00	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+01	7.7E+00	--	--	1.4E+01	7.7E+00	--	--	1.4E+01	7.7E+00	--	--	1.4E+01	7.7E+00	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+04	--	--	--	--	--	--	--	--	--	--	na	1.5E+04
Methylene Chloride ^C	0	--	--	na	5.9E+03	--	--	na	5.9E+04	--	--	--	--	--	--	--	--	--	--	na	5.9E+04
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-01	na	--	--	--	--	--	--	--	--	--	--	3.0E-01	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	1.6E+02	1.8E+01	na	4.6E+03	1.6E+03	1.8E+02	na	4.6E+04	--	--	--	--	--	--	--	--	1.6E+03	1.8E+02	na	4.6E+04
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+03	--	--	--	--	--	--	--	--	--	--	na	6.9E+03
N-Nitrosodimethylamine ^C	0	--	--	na	3.0E+01	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
N-Nitrosodiphenylamine ^C	0	--	--	na	6.0E+01	--	--	na	6.0E+02	--	--	--	--	--	--	--	--	--	--	na	6.0E+02
N-Nitrosodi-n-propylamine ^C	0	--	--	na	5.1E+00	--	--	na	5.1E+01	--	--	--	--	--	--	--	--	--	--	na	5.1E+01
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+02	6.6E+01	na	--	2.8E+02	6.6E+01	na	--	2.8E+02	6.6E+01	na	--	2.8E+02	6.6E+01	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-01	1.3E-01	na	--	6.5E-01	1.3E-01	na	--	6.5E-01	1.3E-01	na	--	6.5E-01	1.3E-01	na	--
PCB Total ^C	0	--	1.4E-02	na	6.4E-04	--	1.4E-01	na	6.4E-03	--	1.4E-01	na	6.4E-03	--	1.4E-01	na	6.4E-03	--	1.4E-01	na	6.4E-03
Pentachlorophenol ^C	0	7.7E-03	5.9E-03	na	3.0E+01	7.7E-02	5.9E-02	na	3.0E+02	7.7E-02	5.9E-02	na	3.0E+02	7.7E-02	5.9E-02	na	3.0E+02	7.7E-02	5.9E-02	na	3.0E+02
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+06	--	--	--	--	--	--	--	--	--	--	na	8.6E+06
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Pholon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	--	--	na	4.0E+01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH (PWS)	Acute	Chronic	HH (PWS)	Acute	Chronic	HH (PWS)	Acute	Chronic	HH (PWS)	Acute	Chronic	HH (PWS)
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+02	5.0E+01	na	4.2E+04	--	--	--	--	2.0E+02	5.0E+01	na
Silver	0	2.7E+00	--	na	--	2.7E+01	--	na	--	--	--	--	--	2.7E+01	--	na
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
1,1,2,2-Tetrachloroethane ^C	0	--	--	na	4.0E+01	--	--	na	4.0E+02	--	--	--	--	--	--	na
Tetrachloroethylene ^C	0	--	--	na	3.3E+01	--	--	na	3.3E+02	--	--	--	--	--	--	na
Thallium	0	--	--	na	4.7E+01	--	--	na	4.7E+00	--	--	--	--	--	--	na
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+04	--	--	--	--	--	--	na
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
Toxaphene ^C	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E+00	2.0E-03	na	2.8E-02	--	--	--	--	7.3E+00	2.0E-03	na
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E+00	7.2E-01	na	--	--	--	--	--	4.6E+00	7.2E-01	na
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+02	--	--	--	--	--	--	na
1,1,2-Trichloroethane ^C	0	--	--	na	1.6E+02	--	--	na	1.6E+03	--	--	--	--	--	--	na
Trichloroethylene ^C	0	--	--	na	3.0E+02	--	--	na	3.0E+03	--	--	--	--	--	--	na
2,4,6-Trichlorophenol ^C	0	--	--	na	2.4E+01	--	--	na	2.4E+02	--	--	--	--	--	--	na
2-(2,4,5-Trichlorophenoxy)propionic acid (Sivex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
Vinyl Chloride ^C	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
Zinc	0	1.0E+02	1.0E+02	na	2.6E+04	1.0E+03	1.0E+03	na	2.6E+05	--	--	--	--	1.0E+03	1.0E+03	na

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing information.
Antidegradation WLAs are based upon a complete mix.
Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+03
Arsenic	9.0E+02
Barium	na
Cadmium	6.0E+00
Chromium III	3.9E+02
Chromium VI	6.4E+01
Copper	4.7E+01
Iron	na
Lead	6.7E+01
Manganese	na
Mercury	4.6E+00
Nickel	1.1E+02
Selenium	3.0E+01
Silver	1.1E+01
Zinc	4.1E+02

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Due date pH from Outfall 001

10-Oct-2005	7
10-Jan-2006	7.4
10-Apr-2006	7.4
10-Jul-2006	7.2
10-Oct-2006	7.2
10-Jan-2007	7.6
10-Apr-2007	7.4
10-Jul-2007	7.2
10-Oct-2007	7.6
10-Jan-2008	7.3
10-Apr-2008	6.9
10-Jul-2008	7.5
10-Oct-2008	7.3
10-Jan-2009	7.5
10-Apr-2009	7.6
10-Jul-2009	7.8
10-Oct-2009	7.7
10-Jan-2010	7.4
10-Apr-2010	7.2

90th percentile 7.62

[illegible][illegible][illegible]

[illegible]

10.57
10.57
9.27
9.27
9.27
9.27
9.27
9.27
9.27
9.27
9.27
9.27
9.27
9.27
9.27
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14.53
14.53
14.53
14.53
14.53
22.87
22.87
22.87
22.87
22.87
22.87
22.87
22.87

[illegible]

6.93

[illegible]

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY

Northern Regional Office

13901 Crown Court

Woodbridge, VA 22193

(703) 583-3800

SUBJECT: TOXICS MANAGEMENT PROGRAM (TMP) DATA REVIEW
Lorton (Griffith) Water Treatment Plant (VA0002585)
REVIEWER: Douglas Frasier
DATE: 15 April 2009
COPIES: TMP file

PREVIOUS REVIEW: 1 May 2008

DATA REVIEWED:

This review covers the third annual WET acute tests conducted in February 2009 for Outfall 001. The acute toxicity tests were performed with *C. dubia* and *P. promelas* as the test species using grab samples of effluent collected from Outfall 001.

DISCUSSION:

The results of these toxicity tests along with the results from previous toxicity tests are summarized in Table 1.

The acute toxicity of the effluent sample was determined with a 48-hour static acute toxicity test using both *C. dubia* and *P. promelas* as the test species. The acute tests yielded a LC₅₀ of greater than 100% effluent; thus, passing the acute toxicity criterion.

The test results indicate that the effluent sample exhibited no acute toxicity.

CONCLUSION:

Facility should continue monitoring Outfall 001 per permit schedule.

FACILITY INFORMATION

FACILITY: FCWA – Griffith Water Treatment Plant

LOCATION: 9800 Ox Road
Lorton, VA 22079

VPDES#: VA0002585

TYPE OF FACILITY: Industrial, minor

REGION/PERMIT WRITER: NRO / Alison Thompson

PERMIT EFFECTIVE DATE: 3 August 2005

SIC CODE/DESCRIPTION: 4941 / Water Treatment Plant

OUTFALL: Production of potable water;
The production capacity of the facility is approximately 70.0-MGD.

RECEIVING STREAMS: Occoquan River; Potomac River Basin and Subbasin;
Section 6; Class II;
Special Standards: b

TMP EFFECTIVE DATE: 3 August 2005

TMP REQUIREMENTS: The NOAEC (No Observed Adverse Effect Concentration), as determined by hypothesis testing, shall be converted to TU_a (acute toxic unit) for DMR reporting where $TU_a = 100/NOAEC$. NOAEC = the highest percent concentration where there was no significant difference when compared to the controls.

BIOMONITORING RESULTS

FCWA – Griffith Water Treatment Plant (VA0002585)

Table 1
Summary of Toxicity Test Results for Outfall 001

TEST DATE	TEST TYPE/ORGANISM	48-H LC ₅₀ (%)	% SURV	TU _a	REMARK
12/01/05	Acute <i>C. dubia</i>	>100	100	1	1st quarterly
12/01/05	Acute <i>P. promelas</i>	>100	95	1	
03/01/06	Acute <i>C. dubia</i>	39.5	0	4	2nd quarterly
03/01/06	Acute <i>P. promelas</i>	90.6	35	2	
06/07/06	Acute <i>C. dubia</i>	>100	100	1	3rd quarterly
06/07/06	Acute <i>P. promelas</i>	>100	100	1	
09/13/06	Acute <i>C. dubia</i>	>100	100	1	4th quarterly
09/13/06	Acute <i>P. promelas</i>	>100	100	1	
12/13/06	Acute <i>C. dubia</i>	>100	100	1	5th quarterly
12/13/06	Acute <i>P. promelas</i>	>100	100	1	
03/14/07	Acute <i>C. dubia</i>	>100	100	1	6th quarterly
03/14/07	Acute <i>P. promelas</i>	>100	100	1	
05/16/07	Acute <i>C. dubia</i>	>100	100	1	7th quarterly
05/16/07	Acute <i>P. promelas</i>	>100	100	1	
08/08/07	Acute <i>C. dubia</i>	>100	100	1	8th quarterly
08/08/07	Acute <i>P. promelas</i>	>100	95	1	
11/07/07	Acute <i>C. dubia</i>	>100	100	1	9th quarterly
11/07/07	Acute <i>P. promelas</i>	>100	100	1	
02/06/08	Acute <i>C. dubia</i>	>100	100	1	2 nd annual
02/06/08	Acute <i>P. promelas</i>	>100	100	1	
02/13/09	Acute <i>C. dubia</i>	>100	100	1	3 rd annual
02/13/09	Acute <i>P. promelas</i>	>100	100	1	

FOOTNOTES:

Boldfaced value indicates that the test failed the toxicity criterion.

ABBREVIATIONS:

S - Survival; G - Growth; R - Reproduction
% SURV - Percent survival in 100% effluent

Spreadsheet for determination of WET test endpoints or WET limits

Excel 97
Revision Date: 01/10/05
File: WETLIM10.xls
(MIX EXE required also)

Enter data in the cells with blue type:

Entry Date: 05/14/10
Facility Name: Griffith WTP
VPDES Number: VA0002585
Outfall Number: 1

Plant Flow: 5.6 MGD
Acute 1Q10: 0 MGD
Chronic 7Q10: 0 MGD

Are data available to calculate CV? (Y/N) N
Are data available to calculate ACR? (Y/N) N

IWC_a 100 % Plant flow/plant flow + 1Q10
IWC_c 100 % Plant flow/plant flow + 7Q10

Dilution, acute 1 100/IWC_a
Dilution, chronic 1 100/IWC_c

0.3 Instream criterion (0.3 TU_a) X's Dilution, acute
1 instream criterion (1.0 TU_c) X's Dilution, chronic
3 ACR X's WLA_c - converts acute WLA to chronic units

10 LC50/NOEC (Default is 10 - If data are available, use tables Page 3)
0.6 Default of 0.6 - If data are available, use tables Page 2)

ACR - acute/chronic ratio
CV - Coefficient of variation
Constants
eA 0.4105447 Default = 0.41
eB 0.6010373 Default = 0.60
eC 2.4334175 Default = 2.43
eD 2.4334175 Default = 2.43 (1 samp) No. of samples 1

LTA_{ac} 1.2328341 WLA_{ac} X's eA
LTA_c 0.6010373 WLA_c X's eB
MDL** with LTA_{ac} 3.90e+050374 TU_a NOEC = 33.3333333 (Protects from acute/chronic toxicity)
MDL** with LTA_c 1.462574684 TU_c NOEC = 68.3725777 (Protects from chronic toxicity)
AML with lowest LTA 1.462574684 TU_a NOEC = 68.3725777 Lowest LTA X's eD

IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU_a TO TU_c

MDL with LTA_{ac} 0.306005607 TU_a LC50 = 933.333325 % Use NOAEC=100%
MDL with LTA_c 0.146257468 TU_c LC50 = 683.725739 % Use NOAEC=100%

Acute Endpoint/Permit Limit					Use as LC ₅₀ in Special Condition, as TU _a on DMR				
ACUTE	100% =	NOAEC	LC ₅₀ =	NA	% Use as	NA	TU _a		
ACUTE WLA _a	0.3				Note: Inform the permittee that if the mean of the data exceeds this TU _a a limit may result using WLA EXE				

Chronic Endpoint/Permit Limit					Use as NOEC in Special Condition, as TU _c on DMR				
CHRONIC	1.462574684 TU _c	NOEC =	69 % Use as	1.44 TU _c					
BOTH*	3.000000074 TU _c	NOEC =	34 % Use as	2.94 TU _c					
AML	1.462574684 TU _c	NOEC =	69 % Use as	1.44 TU _c					
ACUTE WLA _{ac}	3				Note: Inform the permittee that if the mean of the data exceeds this TU _c a limit may result using WLA EXE				
CHRONIC WLA _c	1								

*Both means acute expressed as TU_c

% Flow to be used from MIX EXE

Diluter /modeling study?	Enter Y/N	N
Acute	1:1	
Chronic	1:1	

Go to Page 2
Go to Page 3

NOTE: If the IWC_a is >33%, specify the NOAEC = 100% test/endpoint for use

**The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTA_{ac} and MDL using it are driven by the ACR.

	%
Rounded NOEC's	
NOEC =	34 %
NOEC =	69 %
NOEC =	69 %

	%
Rounded LC50's	
LC50 =	NA
LC50 =	NA

Page 2 - Follow the directions to develop a site specific CV (coefficient of variation)

IF YOU HAVE AT LEAST 10 DATA POINTS THAT ARE QUANTIFIABLE (NOT "<" OR ">") FOR A SPECIES, ENTER THE DATA IN EITHER COLUMN "G" (VERTEBRATE) OR COLUMN "J" (INVERTEBRATE). THE "CV" WILL BE PICKED UP FOR THE CALCULATIONS BELOW. THE DEFAULT VALUES FOR eA, eB, AND eC WILL CHANGE IF THE "CV" IS ANYTHING OTHER THAN 0.6.

Coefficient of Variation for effluent tests

CV = 0.6 (Default 0.6)

$\sigma^2 = 0.3074847$
 $\sigma = 0.554513029$

Using the log variance to develop eA
(P. 100, step 2a of TSD)
 $Z = 1.881$ (97% probability stat from table)

A = -0.88929666
eA = 0.410944686

Using the log variance to develop eB
(P. 100, step 2b of TSD)

$\sigma_a^2 = 0.086177696$
 $\sigma_a = 0.293560379$
B = -0.50909823
eB = 6.651637335

Using the log variance to develop eC
(P. 100, step 4a of TSD)

$\sigma^2 = 0.3074847$
 $\sigma = 0.554513029$
C = 0.889296658
eC = 2.433417525

Using the log variance to develop eD
(P. 100, step 4b of TSD)

$n = 1$ This number will most likely stay as "1", for 1 sample/month.
 $\sigma_n^2 = 0.3074847$
 $\sigma_n = 0.554513029$
D = 0.889296658
eD = 2.433417525

Vertebrate IC ₂₅ Data or LC ₅₀ Data *****	LN of data	Invertebrate IC ₂₅ Data or LC ₅₀ Data *****	LN of data
1		1	
2		2	
3		3	
4		4	
5		5	
6		6	
7		7	
8		8	
9		9	
10		10	
11		11	
12		12	
13		13	
14		14	
15		15	
16		16	
17		17	
18		18	
19		19	
20		20	

St Dev	NEED DATA	NEED DATA	St Dev	NEED DATA	NEED DATA
Mean	0	0	Mean	0	0
Variance	0	0.000000	Variance	0	0.000000
CV	0	CV	0	CV	0

Page 3 - Follow directions to develop a site specific ACR (Acute to Chronic Ratio)

To determine Acute/Chronic Ratio (ACR), insert usable data below. Usable data is defined as valid paired test results, acute and chronic, tested at the same temperature, same species. The chronic NOEC must be less than the acute LC₅₀, since the ACR divides the LC₅₀ by the NOEC. LC₅₀'s >100% should not be used.

Table 1. ACR using Vertebrate data

Set #	LC ₅₀	NOEC	Test ACR	Logarithm	Geomean	Antilog ACR to Use
1	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
2	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
3	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
4	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
5	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
6	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
7	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
8	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
9	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
10	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA

ACR for vertebrate data:

0

Table 1. Result:
Table 2. Result:

Vertebrate ACR
Invertebrate ACR
Lowest ACR

0
0
Default to 10

Table 2. ACR using Invertebrate data

Set #	LC ₅₀	NOEC	Test ACR	Logarithm	Geomean	Antilog ACR to Use
1	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
2	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
3	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
4	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
5	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
6	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
7	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
8	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
9	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
10	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA

ACR for invertebrate data:

0

DILUTION SERIES TO RECOMMEND

Table 4.

Dilution series based on data mean

Dilution series to use for limit

Dilution factor to recommend:

Dilution series to recommend:

Extra dilutions if needed

Monitoring	Limit	
	% Effluent	TUc
	69	1.4492754
	0.8306624	
	100.0	1.00
	50.0	2.00
	25.0	4.00
	12.5	8.00
	6.25	16.00
	3.12	32.00
	1.56	64.00
	39.5	2.53
	32.9	3.04

Table 3. Convert LC₅₀'s and NOEC's to Chronic TU's for use in WLA EXE

Enter LC ₅₀	TUc	Enter NOEC	TUc
1	NO DATA	NO DATA	NO DATA
2	NO DATA	NO DATA	NO DATA
3	NO DATA	NO DATA	NO DATA
4	NO DATA	NO DATA	NO DATA
5	NO DATA	NO DATA	NO DATA
6	NO DATA	NO DATA	NO DATA
7	NO DATA	NO DATA	NO DATA
8	NO DATA	NO DATA	NO DATA
9	NO DATA	NO DATA	NO DATA
10	NO DATA	NO DATA	NO DATA
11	NO DATA	NO DATA	NO DATA
12	NO DATA	NO DATA	NO DATA
13	NO DATA	NO DATA	NO DATA
14	NO DATA	NO DATA	NO DATA
15	NO DATA	NO DATA	NO DATA
16	NO DATA	NO DATA	NO DATA
17	NO DATA	NO DATA	NO DATA
18	NO DATA	NO DATA	NO DATA
19	NO DATA	NO DATA	NO DATA
20	NO DATA	NO DATA	NO DATA

If WLA EXE determines that an acute limit is needed, you need to convert the TUc answer you get to TUA and then an LC₅₀.

enter a here:

%LC₅₀

TUA

- Cell: E3

Comment: assuming that the data are Type 2 data (none of the data in the data set are considered "<" or ">").
- Cell: E7

Comment: This is assuming that the data are Type 2 data (none of the data in the data set are considered "<" or ">").
- Cell: J22

Comment: Remember to change the "N" to "Y" if you have ratios entered, otherwise they won't be used in the calculations.
- Cell: C40

Comment: If you have entered data to calculate an ACR on page 3, and this is still defaulted to "0", make sure you have selected "Y" in cell E21
- Cell: C41

Comment: If you have entered data to calculate an effluent specific CV on page 2, and this is still defaulted to "0.6", make sure you have selected "Y" in cell E20
- Cell: L48

Comment: See Row 151 for the appropriate dilution series to use for these NOEC's
- Cell: G62

Comment: Vertebrates are:
Pimephales promelas
Oncorhynchus mykiss
Cyprinodon variegatus
- Cell: J62

Comment: Invertebrates are:
Ceriodaphnia dubia
Mysidopsis bahia
- Cell: C117

Comment: Vertebrates are:
Pimephales promelas
Cyprinodon variegatus
- Cell: M119

Comment: The ACR has been picked up from cell C34 on Page 1. If you have paired data to calculate an ACR, enter it in the tables to the left, and make sure you have a "Y" in cell E21 on Page 1. Otherwise, the default of 10 will be used to convert your acute data.
- Cell: M121

Comment: If you are only concerned with acute data, you can enter it in the NOEC column for conversion and the number calculated will be equivalent to the T₁₀. The calculation is the same: 100/NOEC = T₁₀ or 100/LC50 = T₁₀.
- Cell: C138

Comment: Invertebrates are:
Ceriodaphnia dubia
Mysidopsis bahia

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated industrial wastewater and stormwater into a water body in Fairfax County, Virginia.

PUBLIC COMMENT PERIOD: XXX, 2010 to 5:00 p.m. on XXX, 2010

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Industrial Wastewater and Stormwater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Fairfax Water, 8570 Executive Park Ave, Fairfax, VA 22031, VA0002585

NAME AND ADDRESS OF FACILITY: Griffith Water Treatment Plant, 9600 Ox Rd, Lorton, VA 22079

PROJECT DESCRIPTION: Fairfax Water has applied for a reissuance of a permit for the public Griffith WTP. The applicant proposes to release treated industrial wastewater and storm water at a rate of 5.6 million gallons per day into a water body. The facility proposes to release the treated industrial wastewaters and storm water in the Occoquan River in Fairfax County in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, Total Suspended Solids, and Chronic Toxicity.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the documents at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.

Name: Alison Thompson

Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193

Phone: (703) 583-3834 E-mail: alison.thompson@deq.virginia.gov Fax: (703) 583-3821

**State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review**

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Fairfax Water – Lorton/Griffith WTP
NPDES Permit Number:	VA0002585
Permit Writer Name:	Alison L. Thompson
Date:	May 13, 2010

Major ☐Minor ☒Industrial ☒Municipal ☐**I.A. Draft Permit Package Submittal Includes:**

	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?	X		
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?			X
8. Whole Effluent Toxicity Test summary and analysis?	X		
9. Permit Rating Sheet for new or modified industrial facilities?	X		

I.B. Permit/Facility Characteristics

	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet or permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet or permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?	X		
a. Has a TMDL been developed and approved by EPA for the impaired water?		X	
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?		X	
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?		X	
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?	X		

I.B. Permit/Facility Characteristics – cont.	Yes	No	N/A
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Review Checklist – For Non-Municipals (To be completed and included in the record for all non-POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether “antibacksliding” provisions were met for any limits that are less stringent than those in the previous NPDES permit?	X		

II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ)	Yes	No	N/A
1. Is the facility subject to a national effluent limitations guideline (ELG)?		X	
a. If yes, does the record adequately document the categorization process, including an evaluation of whether the facility is a new source or an existing source?			X
b. If no, does the record indicate that a technology-based analysis based on Best Professional Judgement (BPJ) was used for all pollutants of concern discharged at treatable concentrations?		X	
2. For all limits developed based on BPJ, does the record indicate that the limits are consistent with the criteria established at 40 CFR 125.3(d)?	X		
3. Does the fact sheet adequately document the calculations used to develop both ELG and /or BPJ technology-based effluent limits?	X		
4. For all limits that are based on production or flow, does the record indicate that the calculations are based on a “reasonable measure of ACTUAL production” for the facility (not design)?			X
5. Does the permit contain “tiered” limits that reflect projected increases in production or flow?		X	
a. If yes, does the permit require the facility to notify the permitting authority when alternate levels of production or flow are attained?			X
6. Are technology-based permit limits expressed in appropriate units of measure (e.g., concentration, mass, SU)?			X
7. Are all technology-based limits expressed in terms of both maximum daily, weekly average, and/or monthly average limits?			X
8. Are any final limits less stringent than required by applicable effluent limitations guidelines or BPJ?		X	

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the record indicate that any WQBELs were derived from a completed and EPA approved TMDL?		X	
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a “reasonable potential” evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the “reasonable potential” evaluation was performed in accordance with the State’s approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have “reasonable potential”?	X		
d. Does the fact sheet indicate that the “reasonable potential” and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations where data are available)?		X	
e. Does the permit contain numeric effluent limits for all pollutants for which “reasonable potential” was determined?	X		
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term (e.g., average monthly) AND short-term (e.g., maximum daily, weekly average, instantaneous) effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the fact sheet indicate that an “antidegradation” review was performed in accordance with the State’s approved antidegradation policy?	X		

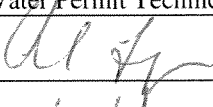
II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require testing for Whole Effluent Toxicity in accordance with the State’s standard practices?	X		

II.F. Special Conditions	Yes	No	N/A
1. Does the permit require development and implementation of a Best Management Practices (BMP) plan or site-specific BMPs?	X		
a. If yes, does the permit adequately incorporate and require compliance with the BMPs?	X		
2. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
3. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		

II.G. Standard Conditions		Yes	No	N/A
1. Does the permit contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?		X		
List of Standard Conditions – 40 CFR 122.41				
Duty to comply	Property rights	Reporting Requirements		
Duty to reapply	Duty to provide information	Planned change		
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance		
not a defense	Monitoring and records	Transfers		
Duty to mitigate	Signatory requirement	Monitoring reports		
Proper O & M	Bypass	Compliance schedules		
Permit actions	Upset	24-Hour reporting		
		Other non-compliance		
2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for existing non-municipal dischargers regarding pollutant notification levels [40 CFR 122.42(a)]?		X		

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	<u>Alison L. Thompson</u>
Title	<u>Water Permit Technical Reviewer</u>
Signature	<u></u>
Date	<u>5/14/10</u>